

Claims:

1. A process for the preparation of aerogels including:
 - the exchange of the liquid phase of the aquagel with xenon;
 - 5 -the extraction of xenon and the possible recovery thereof.
2. A process for the preparation of aerogels according to claim 1, including a previous phase of hydrolysis/condensation of the suitable precursor.
- 10 3. A process for the preparation of aerogels according to claim 2, where the hydrolysis/condensation reaction is carried out starting from an alkoxyde precursor of the formula:
$$X\text{-Me(OR)}_{n-1}$$
- 15 4. A process for the preparation of aerogels according to claim 3 in which Me is a metal belonging to the 3rd, 4th and 5th Groups of the Element Periodic System; n is integer and represents the valence of Me; X is either -OR or -R where -OR is an alkoxyde group and -R is an organic radical linear or branched with a number of carbon atoms up to 10.
- 20 5. A process for the preparation of aerogels according to claim 3 where the suitable precursor is preferably tetramethoxysilane, tetraethoxysilane.
- 25 6. A process for the preparation of aerogels according to claim 3 where the hydrolysis reaction is accomplished in presence of an acid selected among hydrochloric, nitric or acetic acid.
- 30 7. A process for the preparation of aerogels including the exchange of the aquagel liquid phase with xenon according to claim 1 where such an exchange is

accomplished with liquid xenon and the extraction thereof is accomplished under supercritical conditions.

7. A process for the preparation of aerogels according to claim 6 where the exchange of the liquid in the aquagel is carried with liquified xenon at temperature between 0 and 16.6 °C.
8. A process for the preparation of aerogels according to claim 6 where the hypercritical extraction of xenon from the wet gel is carried a temperature higher than 16.6 °C.
9. A process for the preparation of aerogels according to claim 6 where the hypercritical extraction of xenon is carried at a pressure higher than 58.4 bar.
10. A process for the preparation of aerogels including the exchange of the aquagel liquid phase with xenon according to claims 1 and 6 characterized in that it comprises also a xenon recovering phase at the end of the extraction.